PATENT CLAIMS

1. Method for compressing data, comprising the steps of:

transforming data of a frame into a first sequence of real numbers by using an entropy increasing transform method;

quantizing said first sequence of real numbers of said frame to obtain a first sequence of integers;

quantizing said first sequence of integers of said frame using a predicted sequence of integers representing said first sequence of integers to produce a second sequence of integers; and

encoding said integers of said second sequence of said frame into a stream of bits representing the compressed sequence of integers of said frame.

2. Method according to claim 1, wherein quantizing said first sequence of integers of said frame comprises the step of:

for each coefficient of said second sequence of integers, selecting a relation between an integer of said first sequence of integers of said frame and the corresponding integer of a reference frame and the corresponding integer of the predicted sequence based on an evaluation value of said relation.

3. Method according to claim 2, wherein the step of selecting comprises the step of

for each coefficient of said second sequence of integers, comparing a first relation between the integer of said first sequence of integers of said frame and the corresponding integer of a reference frame and a second relation between said integer and the corresponding integer of the predicted sequence; and

determining the evaluation value for each relation based on respective relation in encoded form.

4. Method according to claim 2, wherein the step of determining comprises the step of

determining the absolute value of respective relation, wherein the evaluation value for each relation is set to the corresponding absolute value.

5. Method according to claim 4, wherein the step of selecting comprises the step of selecting the relation having the lowest absolute value.

6. Method according to claim 2 or 3, wherein the step of selecting comprises the step of:

selecting said relation according to

$$\begin{array}{ll} c'=c-r & \text{if } p=r \text{ or } \frac{c-r}{p-r}<\frac{1}{2}, \\ c'=c-p & \text{otherwise} \end{array}$$

, where c' is an integer of the second sequence, p is the corresponding integer of the predicted sequence, c is the corresponding integer of the first sequence of a current frame, and r is the corresponding integer of a reference frame.

7. Method according to claim 4, wherein the step of quantizing said first sequence of integers of said frame further comprises the step of: if

$$p \neq r \text{ and } -\frac{1}{2} \leq \frac{c-r}{p-r} < \frac{3}{2},$$

associating a control bit identifying the selected relation.

8. Method according to any one of preceding claims, further comprising the step of:

storing said stream of bits as a compressed representation of said sequence of said frame.

9. Method according to any one of the preceding claims, further comprising decompressing said compressed sequence by inverting the steps of transforming, quantizing said first sequence of real numbers, quantizing said first sequence of integers of said frame, and decoding in reverse order.

10. Method according to claim 9, wherein the step of inverting the step of quantizing said first sequence of integers comprises the steps of:

reconstructing a sequence of integers of a current frame according to

$c = c' + r$ if $p = r$ or $\frac{c-r}{p-r} < \frac{1}{2}$,

$c = c' + r$ otherwise

, where c' is an integer of the compressed sequence, r is the corresponding integer of the reference frame, and c is the corresponding integer of the reconstructed sequence representing the first sequence of the current frame

11. Method according to claim 10, wherein the step of reconstructing comprises the step of

if

$p \neq r$ and $-\frac{1}{2} \leq \frac{c-r}{p-r} < \frac{3}{2}$,

where p an integer of the predicted sequence and c is the corresponding integer of the current frame, using the associated control bit to identify the relation between an integer, c', of the compressed sequence, the corresponding integer, r, of the reference frame, and the corresponding integer, c, of the reconstructed sequence representing the first sequence of the current frame.

12. Method according to claim 10 or 11, further comprising the step of

storing the reconstructed sequence of integers.

13. Method according to any one of preceding claims, wherein the predicted sequence is a simulated reconstructed sequence of a previous frame.

14. Method according to any one of the preceding claims, wherein the entropy increasing transform method is a wavelet transform method.

15. System for compressing and decompressing data, comprising:
a storage device for storing data;
transform means arranged to transform a frame of data into a sequence of real numbers;
compression processing means, comprising
quantization means arranged to quantize said first sequence of real numbers to produce a second sequence of integers;
adaptive quantization means arranged to quantize said first sequence of integers to produce a second sequence of integers by using a predicted sequence of integers representing said first sequence of integers; and
encoding means arranged to encode said integers of said second sequence of said frame into a stream of bits representing the compressed sequence of integers of said frame.

16. System according to claim 15, further comprising
reconstruction means comprising
decoding means arranged to decode a bit stream representing a compressed sequence of integers into a third sequence of integers;
inverse adaptive quantization means arranged to inversely quantize said fourth sequence of integers to produce a reconstructed first sequence of integers by using the predicted

sequence of integers representing said first sequence of integers; and

inverse quantization means arranged to inversely quantize said reconstructed first sequence of integers to produce a second sequence of integers second sequence of real numbers; and

inverse transform means arranged to inversely transform said sequence of real number to a reconstructed frame of data.

17. Computer readable medium comprising instructions for bringing a computer to perform the method according to any one of the claims 1-14.